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OFFICIAL DHI

OWNER SAMPLER

WEIGH - A - DAY - A - MONTH

AGRICULTURAL RESEARCH SERVICE, U. S. DEPARTMENT OF AGRICULTURE

Dairy-Herd-Improvement Letter

ARS 44-225  
(Vol. 47, No. 2)

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LACTATION AVERAGES BY BREED AND YEAR FOR OFFICIAL DHI COWS  
CALVING FROM 1954 THROUGH 1968 1/

This publication contains lactation averages for milk yield (lb.), fat percentage and fat yield (lb.), by breed and year of calving for the years 1954-68. Lactation averages have been standardized to a twice-a-day-milking (2X), 305-day lactation length, mature equivalent (M.E.) basis.

Lactation averages for the years 1965, 1966, 1967, and 1968 are being reported for the first time. Lactation averages for the years 1954 through 1964 have been previously reported by USDA in the following publications:

ARS 44-82	DHIA Lactation Averages 1956-57
ARS 44-104	DHIA Lactation Averages 1958
ARS 44-105	DHIA Lactation Averages 1959
ARS 44-143	DHIA Lactation Averages 1960-61
ARS 44-147	Dairy-Herd-Improvement Letter, June 1964
ARS 44-161	Dairy-Herd-Improvement Letter, June 1965
ARS 44-181	Dairy-Herd-Improvement Letter, June 1966
ARS 44-194	Dairy-Herd-Improvement Letter, August 1967

1/ Prepared by B. T. McDaniel and F. N. Dickinson with the technical assistance of L. G. Waite, C. J. Weber, V. H. Lytton, C. A. Rampendahl, and J. C. Corbin

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However, the breed-year averages in the current publication may differ slightly from previous lactation averages because of the more appropriate adjustment factors used in these computations.

Records included in averages.--Only Official DHI records 2/ which passed USDA editing procedures described in Dairy-Herd-Improvement Letter, ARS 44-222, December 1970, were included in the averages. Cows were not included if the breed of sire and breed of dam were different. Records of cows with unknown sires or dams were included in averages for the cow's breed.

For instance, a cow reported as a Brown Swiss (breed 5) would not have been included if her dam was coded as another breed. However, if the cow's sire or dam has been reported as breed 0, unknown, the cow would have been included in the averages for Brown Swiss cows.

How records were standardized to a 2X, 305-day, M.E. basis.--Lactations where cows were denied an opportunity to milk 305 days were projected to a 305-day basis with factors that account for differences in lactation curves by breed, age, and the two yield traits--milk and fat. These factors are currently used by USDA and were published in Dairy-Herd-Improvement Letter, ARS 44-164, August 1965.

All lactations were adjusted to a mature equivalent (M.E.) basis by the age adjustment factors currently in use by USDA. These account for variation due to breed, season, region, and the two yield traits--milk and fat. The factors used were published in Dairy-Herd-Improvement Letter, ARS 44-188, February 1967.

Lactation made on three- or four-times-a-day milking were reduced to a two-times-a-day (2X) basis with factors

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2/ DHIR records are included since they are also Official DHI records.

published in ARS 52-1 (Kendrick, 1955) 3/.

Fat percentages were computed from the 2X, 305-day, M.E. milk and fat yields, which put them on the same basis.

Tables of averages and numbers of records by breed and year.--The number of Official DHI lactation records available for each year of calving and respective 2X, 305-day, M. E. averages for lactation milk yields, fat percentages, and fat yields are presented in separate tables for each breed.

Averages for Ayrshires are in table 1. For example, they show that in 1968 there were 23,803 Official DHI lactation records of Ayrshire cows that passed USDA edits. These lactation records averaged 11,219 pounds of milk, 3.90 percent fat, and 437 pounds of milk fat on a 2X, 305-day, M.E. basis. Similar data for other breeds are in tables 2 through 8. Data for Guernseys are in table 2, for Holsteins in table 3, for Jerseys in table 4, for Brown Swiss in table 5, for Milking Shorthorns in table 6, for Red Danes in table 7, and for Red Polls in table 8.

Annual changes by breed and period.--The average annual changes in yields and number of records reported by breed and period are shown for the five major dairy breeds in table 9. The 5-year periods were chosen to show the major time trends free of the small year-to-year fluctuations.

The annual increase in milk yield accelerated between 1954 and 1968 for Ayrshires, Guernseys, and Jerseys. For instance the increase for Guernseys averaged 99 pounds per year between 1954 and 1958, 108 pounds per year between 1958 and 1963, and 126 pounds per year between 1963 and 1968.

The annual change in fat yields ranged from less than a pound to 7.5 pounds. For the majority of the breeds and periods the increases varied between 4 and 5 pounds.

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3/ Kendrick, J. F. Standardizing Dairy Herd Improvement Association Records in Proving Sires. U.S. Dept. of Agriculture, Agricultural Research Service. ARS 52-1, 1955.



There was very little change over the 15 years in the fat percentages of Holstein and Brown Swiss cows. However, fat percentages declined in the other three breeds. Jerseys showed the greatest decrease during the 15-year period. The rate of decrease was greatest between 1958 and 1963. Fat percentages for Ayrshires and Guernseys were fairly stable from 1954 to 1964, but have decreased more rapidly since 1964 in both breeds.

Table 9 also shows that the number of lactation records reported to USDA increased between 1954 and 1964 for all breeds. The major causes of the increase were (1) the doubling in number of cows on Official DHI and (2) the increase in percentage of Official DHI records reported to USDA from about 50 percent in 1954 to 90 percent in 1968. The great increase in number of records reported between 1958 and 1963 was also affected by the rapid expansion of centralized computer processing of Official DHI records.

The numbers of records reported increased for all breeds between 1954 and 1963, and continued to increase for Holsteins, Jerseys, and Brown Swiss between 1963 and 1968.

Annual percentage changes by breed and period.--The average annual percentage changes in yields and numbers of records are presented in table 10. The changes were expressed as percentages to eliminate the effects of the breed means.

Annual percentage increases in average milk yields varied from 0.52 to 1.59 percent, but were mostly from 1.0 to 1.6 percent. The most notable of the changes in milk yield were as follows: Ayrshires had the greatest increases between 1958 and 1968; Jerseys had much lower gains than other breeds between 1954 and 1963; the rate of improvement in Holsteins slowed in 1963 through 1968 compared to earlier years.

Percentage changes in fat yields varied more among periods and breeds than those for milk yield (0.05 to 1.80 percent). Again, Jerseys were generally lowest. Most average annual gains were slightly over 1.0 percent.

The range in percentage change in fat percent was much lower than those for milk or fat yields (-02.3 to +1.0 percent). Generally, the absolute magnitude of percentage changes in fat percents were 1.0 percent or smaller. Jerseys were the only breed that dropped in all periods. Substantial net drops also occurred in Ayrshires and Guernseys.

Table 10 also shows the large average annual increase in number of Official DHI records reported to USDA since 1954. For all periods the percentage increase in number reported was highest for Holsteins and lowest for Guernseys. Actually, 2.4 percent fewer Guernsey records were reported annually for the period 1963 to 1968. Holsteins are clearly increasing faster in Official DHI herds than any of the other breeds.

Cumulative percentage changes since 1954.--Table 11 shows the cumulative percentage gains or losses for all breeds and traits.

All breeds gained in milk yield between 1954 and 1968. The largest percentage gains were in Ayrshires (21.5 percent) and the smallest in Jerseys (13.3 percent). The other breeds were close in total percentage improvement (17-19 percent).

For fat yield, Holsteins had the highest gain (19.6 percent) with Ayrshires a close second (19.1 percent). Total gain in Jersey fat yield was 8.8 percent, only about half that of the 17.5 percent for Guernseys and 18.8 percent for Brown Swiss.

The number of Official DHI lactation records reported to USDA increased in all breeds between 1954 and 1968. The smallest increase has been in Guernseys (58 percent) and the greatest in Holsteins (537 percent). Ayrshires have about doubled gain (97 percent) and Jerseys and Brown Swiss have nearly tripled gain (182 and 184 percent, respectively).

Tables showing details of year trends by traits.--To facilitate comparisons of time trends for the various traits by breeds, detailed data for all breeds are combined in tables 12 to 15. The number of records available for cows calving

in each year are shown in table 12, milk yields in table 13, fat percentages in table 14, and fat yields in table 15.

Publication of other production averages.--Milk and fat yield averages for subsets of the data, such as those by State and by registered and grade cows, will be available in future Dairy-Herd-Improvement Letters.



TABLE 1.--Yearly lactation averages for Ayrshire cows calving from 1954 through 1968 on a 2X, 305-day, M.E. basis

Year	Official DHI records used	Milk	Fat	Fat
	<u>Number</u>	<u>Pounds</u>	<u>Percent</u>	<u>Pounds</u>
1954	12,057	9,237	3.97	367
1955	12,774	9,333	3.98	372
1956	12,597	9,546	3.98	380
1957	14,184	9,620	3.98	383
1958	15,845	9,667	3.98	385
1959	16,765	9,619	3.95	380
1960	19,169	9,720	3.96	385
1961	20,634	9,877	3.94	390
1962	24,023	10,162	3.94	400
1963	24,300	10,436	3.94	411
1964	25,608	10,693	3.94	421
1965	25,653	10,749	3.92	422
1966	24,389	10,936	3.93	429
1967	24,647	11,007	3.91	430
1968	23,803	11,219	3.90	437

TABLE 2.--Yearly lactation averages for Guernsey cows calving from 1954 through 1968 on a 2X, 305-day, M.E. basis

Year	Official DHI records used	Milk	Fat	Fat
	<u>Number</u>	<u>Pounds</u>	<u>Percent</u>	<u>Pounds</u>
1954	70,990	8,146	4.70	383
1955	71,594	8,247	4.71	388
1956	71,194	8,387	4.71	395
1957	79,563	8,422	4.71	397
1958	86,173	8,542	4.71	402
1959	97,833	8,573	4.69	402
1960	107,723	8,577	4.70	403
1961	113,683	8,718	4.69	409
1962	128,129	8,895	4.70	418
1963	127,569	9,082	4.69	427
1964	130,867	9,208	4.68	431
1965	126,682	9,282	4.66	433
1966	120,652	9,449	4.66	440
1967	117,500	9,551	4.65	444
1968	112,146	9,712	4.63	450

TABLE 3.--Yearly lactation averages for Holstein cows calving from 1954 through 1968 on a 2X, 305-day, M.E. basis

Year	Official DHI records used	Milk	Fat	Fat
	<u>Number</u>	<u>Pounds</u>	<u>Percent</u>	<u>Pounds</u>
1954	217,903	11,871	3.57	423
1955	238,853	12,033	3.58	431
1956	248,955	12,159	3.59	437
1957	293,676	12,249	3.61	442
1958	342,437	12,495	3.61	451
1959	416,008	12,485	3.62	451
1960	546,231	12,469	3.61	451
1961	667,768	12,620	3.61	455
1962	822,118	12,959	3.61	468
1963	949,241	13,322	3.60	480
1964	1,138,375	13,570	3.60	489
1965	1,221,969	13,601	3.60	490
1966	1,246,581	13,790	3.61	498
1967	1,325,896	13,850	3.61	500
1968	1,387,737	14,032	3.61	506

TABLE 4.--Yearly lactation averages for Jersey cows calving from 1954 through 1968 on a 2X, 305-day, M.E. basis

Year	Official DHI records used	Milk	Fat	Fat
	<u>Number</u>	<u>Pounds</u>	<u>Percent</u>	<u>Pounds</u>
1954	37,611	7,868	5.19	409
1955	38,587	7,923	5.19	411
1956	39,192	8,030	5.17	415
1957	43,050	7,986	5.17	413
1958	48,128	8,140	5.17	421
1959	52,312	8,119	5.14	418
1960	65,835	8,069	5.10	412
1961	76,434	8,180	5.07	415
1962	87,828	8,294	5.07	421
1963	90,523	8,352	5.05	422
1964	101,218	8,506	5.03	428
1965	106,523	8,593	5.01	431
1966	105,484	8,718	5.01	437
1967	107,241	8,786	5.01	440
1968	106,976	8,914	5.00	445

TABLE 5.--Yearly lactation averages for Brown Swiss cows calving from 1954 through 1968 on a 2X, 305-day, M.E. basis

Year	Official DHI records used	Milk	Fat	Fat
	<u>Number</u>	<u>Pounds</u>	<u>Percent</u>	<u>Pounds</u>
1954	10,191	10,442	4.00	417
1955	10,235	10,573	3.99	422
1956	10,891	10,755	4.01	431
1957	11,967	10,795	4.02	434
1958	12,677	11,089	4.03	447
1959	14,635	11,038	4.04	446
1960	17,603	10,887	4.03	439
1961	20,237	11,022	4.02	443
1962	23,100	11,279	4.03	454
1963	25,442	11,647	4.02	468
1964	28,792	11,885	4.01	477
1965	28,188	11,889	4.01	477
1966	27,743	12,053	4.02	485
1967	28,708	12,161	4.02	489
1968	28,768	12,232	4.02	491

TABLE 6.--Yearly lactation averages for Milking Shorthorn cows calving from 1954 through 1968 on a 2X, 305-day, M.E.basis

Year	Official DHI records used	Milk	Fat	Fat
	<u>Number</u>	<u>Pounds</u>	<u>Percent</u>	<u>Pounds</u>
1954	3,544	8,031	3.77	303
1955	3,428	8,198	3.77	309
1956	3,144	8,288	3.77	313
1957	3,029	8,370	3.77	316
1958	2,662	8,804	3.76	331
1959	2,756	8,780	3.78	332
1960	3,152	8,574	3.77	324
1961	3,305	8,795	3.77	331
1962	3,706	8,876	3.74	332
1963	3,786	9,178	3.68	338
1964	3,806	9,447	3.68	348
1965	3,760	9,429	3.69	348
1966	3,427	9,604	3.68	354
1967	<u>1/1,209</u>	<u>1/9,753</u>	<u>1/3.69</u>	<u>1/360</u>
1968	<u>1/2,159</u>	<u>1/10,066</u>	<u>1/3.71</u>	<u>1/374</u>

1/ Includes only part of the records reported. The others will be entered and averages recomputed as soon as possible.

TABLE 7.--Yearly lactation averages for Red Dane cows calving from 1954 through 1968 on a 2X, 305-day, M.E. basis

Year	Official DHI records used	Milk	Fat	Fat
	<u>Number</u>	<u>Pounds</u>	<u>Percent</u>	<u>Pounds</u>
1954	417	9,744	3.96	386
1955	301	9,914	3.94	391
1956	136	10,207	3.94	402
1957	66	10,327	3.87	399
1958	77	10,348	3.74	387
1959	64	10,705	3.87	414
1960	129	10,801	3.97	429
1961	187	10,852	3.90	423
1962	181	11,497	3.92	450
1963	242	12,074	3.92	474
1964	245	12,265	3.89	477
1965	235	12,734	3.92	499
1966	210	12,904	3.90	503
1967	194	12,845	3.84	493
1968	193	13,487	3.93	530

TABLE 8.--Yearly lactation averages for Red Poll cows calving from 1960 through 1968 on a 2X, 305-day, M.E. basis

Year	Official DHI records used <u>1/</u>	Milk	Fat	Fat
	<u>Number</u>	<u>Pounds</u>	<u>Percent</u>	<u>Pounds</u>
1960	105	7,651	4.08	312
1961	121	7,277	4.03	293
1962	124	7,125	4.02	287
1963	128	8,087	3.97	321
1964	135	8,113	3.93	319
1965	84	8,023	3.99	320
1966	77	8,552	4.01	343
1967	52	8,697	3.93	342
1968	53	9,067	3.79	343

1/ Less than 20 records available for each of the years 1954 through 1959.

TABLE 9.--Average annual changes in characteristics of Ayrshire, Guernsey, Holstein, Jersey, and Brown Swiss cows by period

Period	Ayrshire	Guernsey	Holstein	Jersey	Brown Swiss
<u>Milk Yield, pounds</u>					
1954 to 1958	108	99	156	68	162
1958 to 1963	154	108	165	42	112
1963 to 1968	157	126	142	112	117
<u>Fat Yield, pounds</u>					
1954 to 1958	4.5	4.8	7.0	3.0	7.5
1958 to 1963	5.2	5.0	5.8	0.2	4.2
1963 to 1968	5.2	4.6	5.2	4.6	4.6
<u>Fat, percent</u>					
1954 to 1958	0.003	0.003	0.010	-0.005	0.008
1958 to 1963	-.008	-.004	-.002	-.024	-.002
1963 to 1968	-.008	-.012	.002	-.010	.000
<u>Official DHI lactation records reported, number</u>					
1954 to 1958	947	3,796	31,134	2,629	622
1958 to 1963	1,691	8,279	121,361	8,479	2,553
1963 to 1968	-99	-3,085	87,699	3,291	665



TABLE 10.--Annual percentage changes in characteristics of  
Ayrshire, Guernsey, Holstein, Jersey, and Brown Swiss  
cows by period

Period	Ayrshire	Guernsey	Holstein	Jersey	Brown Swiss
<u>Milk Yield, percent</u>					
1954 to 1958	1.17	1.22	1.32	0.87	1.55
1958 to 1963	1.59	1.26	1.32	.52	1.01
1963 to 1968	1.50	1.39	1.07	1.35	1.00
<u>Fat Yield, percent</u>					
1954 to 1958	1.23	1.24	1.66	.73	1.80
1958 to 1963	1.35	1.24	1.29	.05	.94
1963 to 1968	1.27	1.08	1.08	1.09	.98
<u>Fat, percent</u>					
1954 to 1958	.25	.21	1.12	-.39	.75
1958 to 1963	-1.00	-.42	-.28	-2.32	-.25
1963 to 1968	-1.02	-1.28	.28	-.99	.00
<u>Official DHI lactation records reported, number</u>					
1954 to 1958	7.86	5.35	14.29	6.99	6.10
1958 to 1963	10.67	9.61	35.44	17.62	20.14
1963 to 1968	-.41	-2.42	9.24	3.64	2.61

TABLE 11.--Cumulative percentage changes<sup>1/</sup> at 5-year intervals  
for characteristics of Ayrshire, Guernsey, Holstein,  
Jersey, and Brown Swiss cows

Year	Ayrshire	Guernsey	Holstein	Jersey	Brown Swiss
<u>Milk Yield, percent</u>					
1958	4.7	4.9	5.3	3.5	6.2
1963	13.0	11.5	12.2	6.2	11.5
1968	21.5	19.2	18.2	13.3	17.1
<u>Fat yield, percent</u>					
1958	4.9	5.0	6.6	2.9	7.2
1963	12.0	11.5	13.5	3.2	12.2
1968	19.1	17.5	19.6	8.8	17.8
<u>Fat, percent</u>					
1958	0.3	0.2	1.1	-0.4	0.8
1963	-.8	-.2	.8	-2.7	.5
1968	-1.8	-1.5	1.1	-3.7	.5
<u>Official DHI lactation records reported, number</u>					
1958	31.4	21.4	57.2	28.0	24.4
1963	101.5	79.7	335.6	140.7	149.7
1968	97.4	58.0	536.9	184.4	182.3

<sup>1/</sup> 1954 levels were used as the base.

TABLE 12.--Comparison of trends in number of Official DHI records available for lactation averages

Year	Ayrshire	Guernsey	Holstein	Jersey	Brown Swiss	M. Short-horn	Red Dane	Red Poll
----- <u>Number</u> -----								
1954	12,057	70,990	217,903	37,611	10,191	3,544	417	(1/).
1955	12,774	71,594	238,853	38,587	10,235	3,428	301	(1/).
1956	12,597	71,194	248,955	39,192	10,891	3,144	136	(1/).
1957	14,184	79,563	293,676	43,050	11,967	3,029	66	(1/).
1958	15,845	86,173	342,437	48,128	12,677	2,662	77	(1/).
1959	16,765	97,833	416,008	52,312	14,635	2,756	64	(1/).
1960	19,169	107,723	546,231	65,835	17,603	3,152	129	105
1961	20,634	113,683	667,768	76,434	20,237	3,305	187	121
1962	24,023	128,129	822,118	87,828	23,100	3,706	181	124
1963	24,300	127,569	949,241	90,523	25,442	3,786	242	128
1964	25,608	130,867	1,138,375	101,218	28,792	3,806	245	135
1965	25,653	126,682	1,221,969	106,523	28,188	3,760	235	84
1966	24,389	120,652	1,246,581	105,484	27,743	3,427	210	77
1967	24,647	117,500	1,325,896	107,241	28,708	<u>2</u> /1,209	194	52
1968	23,803	112,146	1,387,737	106,976	28,768	<u>2</u> /2,159	193	53

1/ Less than 20 records available for each of the years 1954 through 1959.

2/ Includes only part of the records reported. The other records will be entered and averages recomputed as soon as possible.

TABLE 13.--Comparison of trends in milk yields on a 2x, 305-day, M.E. basis

Year	Ayrshire	Guernsey	Holstein	Jersey	Brown Swiss	M. Short-horn	Red Dane	Red Poll
----- <u>Pounds</u> -----								
1954	9,237	8,146	11,871	7,868	10,442	8,031	9,744	(1/).
1955	9,333	8,247	12,033	7,923	10,573	8,198	9,914	(1/).
1956	9,546	8,387	12,159	8,030	10,755	8,288	10,207	(1/).
1957	9,620	8,422	12,249	7,986	10,795	8,370	10,327	(1/).
1958	9,667	8,542	12,495	8,140	11,089	8,804	10,348	(1/).
1959	9,619	8,573	12,485	8,119	11,038	8,780	10,705	(1/).
1960	9,720	8,577	12,469	8,069	10,887	8,574	10,801	7,651
1961	9,877	8,718	12,620	8,180	11,022	8,795	10,852	7,277
1962	10,162	8,895	12,959	8,294	11,279	8,876	11,497	7,125
1963	10,436	9,082	13,322	8,352	11,647	9,178	12,074	8,087
1964	10,693	9,208	13,570	8,506	11,885	9,447	12,265	8,113
1965	10,749	9,282	13,601	8,593	11,889	9,429	12,734	8,023
1966	10,936	9,449	13,790	8,718	12,053	9,604	12,904	8,552
1967	11,007	9,551	13,850	8,786	12,161	<u>2</u> /9,753	12,845	8,697
1968	11,219	9,712	14,032	8,914	12,232	<u>2</u> /10,066	13,487	9,067

1/ Less than 20 records available for each of the years 1954 through 1959.

2/ Includes only part of the records reported. The other records will be entered and averages recomputed as soon as possible.

TABLE 14.--Comparison of trends in percent fat on a 2x, 305-day, M.E. basis

Year	Ayrshire	Guernsey	Holstein	Jersey	Brown Swiss	M. Short-horn	Red Dane	Red Poll
----- Percent -----								
1954	3.97	4.70	3.57	5.19	4.00	3.77	3.96	(1/).
1955	3.98	4.71	3.58	5.19	3.99	3.77	3.94	(1/).
1956	3.98	4.71	3.59	5.17	4.01	3.77	3.94	(1/).
1957	3.98	4.71	3.61	5.17	4.02	3.77	3.87	(1/).
1958	3.98	4.71	3.61	5.17	4.03	3.76	3.74	(1/).
1959	3.95	4.69	3.62	5.14	4.04	3.78	3.87	(1/).
1960	3.96	4.70	3.61	5.10	4.03	3.77	3.97	4.08
1961	3.94	4.69	3.61	5.07	4.02	3.77	3.90	4.03
1962	3.94	4.70	3.61	5.07	4.03	3.74	3.92	4.02
1963	3.94	4.69	3.60	5.05	4.02	3.68	3.92	3.97
1964	3.94	4.68	3.60	5.03	4.01	3.68	3.89	3.93
1965	3.92	4.66	3.60	5.01	4.01	3.69	3.92	3.99
1966	3.93	4.66	3.61	5.01	4.02	3.68	3.90	4.01
1967	3.91	4.65	3.61	5.01	4.02	2/3.69	3.84	3.93
1968	3.90	4.63	3.61	5.00	4.02	2/3.71	3.93	3.79

1/ Less than 20 records available for each of the years 1954 through 1959.

2/ Includes only part of the records reported. The other records will be entered and averages recomputed as soon as possible.

TABLE 15.--Comparison of trends in fat yields on a 2x, 305-day, M.E. basis

Year	Ayrshire	Guernsey	Holstein	Jersey	Brown Swiss	Milking Shorthorn	Red Dane	Red Poll
----- Pounds -----								
1954	367	383	423	409	417	303	386	(1/).
1955	372	388	431	411	422	309	391	(1/).
1956	380	395	437	415	431	313	402	(1/).
1957	383	397	442	413	434	316	399	(1/).
1958	385	402	451	421	447	331	387	(1/).
1959	380	402	451	418	446	332	414	(1/).
1960	385	403	451	412	439	324	429	312
1961	390	409	455	415	443	331	423	293
1962	400	418	468	421	454	332	450	287
1963	411	427	480	422	468	338	474	321
1964	421	431	489	428	477	348	477	319
1965	422	433	490	431	477	348	499	320
1966	429	440	498	437	485	354	503	343
1967	430	444	500	440	489	2/360	493	342
1968	437	450	506	445	491	2/374	530	343

1/ Less than 20 records available for each of the years 1954 through 1959.

2/ Includes only part of the records reported. The other records will be entered and averages recomputed as soon as possible.

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